IN THE CLAIMS:

1. (Original) A clipping circuit comprising:

a clipper for clipping a target signal fed thereto within a range of data values set for the target signal;

a subtractor for subtracting, from a data value of the target signal to be clipped by the clipper, each of data values of adjacent signals located a predetermined interval away from the target signal before and after the target signal;

A1 cont'd

a minimum value setter for setting, as a minimum value of the range of data values for the target signal, the data value of one of the two adjacent signals that, when subtracted from the data value of the target signal, yields a difference greater than a first threshold value; and

a maximum value setter for setting, as a maximum value of the range of data values for the target signal, the data value of one of the two adjacent signals that, when subtracted from the data value of the target signal, yields a difference smaller than a second threshold value,

wherein, when the data value of the target signal fed to the clipper falls within the range of data values set for the target signal by the maximum value and minimum value setters, the target signal is output intact,

when the data value of the target signal fed to the clipper is smaller than the minimum value, the target signal is output after being clipped at the minimum value, and,

when the data value of the target signal fed to the clipper is greater than the maximum value, the target signal is output after being clipped at the maximum value.

3 ~~2~~. (Original) A clipping circuit comprising:

a clipper for clipping a target signal fed thereto within a range of data values set for the target signal;

a first subtractor for calculating, for the target signal to be clipped by the clipper and a plurality of signals located at predetermined intervals from one another before and after the target signal, a difference between data values of every two adjacent signals by subtracting the data value of one of those two signals farther from the target signal from the data value of one of those two signals nearer to the target signal, in order of proximity to the target signal;

A1 cont'd

a second subtractor for calculating a difference between the data value of each of the two adjacent signals nearest to the target signal and the data value of the target signal by subtracting the data value of that adjacent signal from the data value of the target signal;

a minimum value setter for setting, as a minimum value of the range of data values for the target signal, the data value of whichever is nearer to the target signal out of two signals whose data value, when processed by the first subtractor, yields a difference smaller than a first threshold value and that are located farther than one of the adjacent signals whose data value, when processed by the second subtractor, yields a difference greater than the first threshold value; and

a maximum value setter for setting, as a maximum value of the range of data values for the target signal, the data value of whichever is nearer to the target signal out of two signals whose data value, when processed by the first subtractor, yields a difference greater than a second threshold value and that are located farther than one

of the adjacent signals whose data value, when processed by the second subtractor, yields a difference smaller than the first threshold value,

wherein, when the data value of the target signal fed to the clipper falls within the range of data values set for the target signal by the maximum value and minimum value setters, the target signal is output intact,

when the data value of the target signal fed to the clipper is smaller than the minimum value, the target signal is output after being clipped at the minimum value, and,

A1 cont'd

when the data value of the target signal fed to the clipper is greater than the maximum value, the target signal is output after being clipped at the maximum value.

~~2~~ 5. (Original) An image processing device comprising:

an edge detecting circuit for performing second-order differentiation on image signals fed thereto to detect edge components and output edge signals representing the edge components;

an edge enhancement circuit for superimposing the edge signals on the image signals to perform edge enhancement on the image signals;

a range setting circuit for comparing, for each of image signals obtained from individual pixels, a data value of a target image signal obtained from a pixel targeted by the edge enhancement with each of data values of two adjacent image signals obtained from pixels adjacent to the targeted pixel to set a range of data values in which the data value of the target image signal is allowed to vary by setting as a maximum value the data value of one of the two adjacent image signals whose data value is greater than the data value of the target image signal and setting as a minimum value the data value

of one of the two adjacent image signals whose data value is smaller than the data value of the target image signal; and

a clipper for making the data value of the target image signal equal to the maximum or minimum value of the range set by the range setting circuit when the data value of the target image signal output from the edge enhancement circuit is greater than the maximum value or smaller than the minimum value, respectively, of the range set by the range setting circuit, the clipper otherwise leaving intact the data value of the target image signal as obtained after the edge enhancement.

A1 cont'd

6 ~~4~~. (Original) An image processing device as claimed in claim 5 ~~3~~,

wherein the range setting circuit

sets, as the maximum value, the data value of one of the two adjacent image signals whose data value, when compared with the data value of the target image signal, yields a difference greater than a predetermined threshold value and whose data value is greater than the data value of the target image signal, and

sets, as the minimum value, the data value of one of the two adjacent image signals whose data value, when compared with the data value of the target image signal, yields a difference greater than the predetermined threshold value and whose data value is smaller than the data value of the target image signal.

7 ~~5~~. (Original) An image processing device as claimed in claim 6 ~~4~~,

wherein,

when the difference between the data value of the target image signal and the data value of one of the two adjacent image signals is smaller than the threshold value, if the range setting circuit sets the data value of the other of the two adjacent

image signals as the maximum value, the range setting circuit sets the data value of the target image signal as the minimum value, and, if the range setting circuit sets the data value of the other of the two adjacent image signals as the minimum value, the range setting circuit sets the data value of the target image signal as the maximum value, and

when the difference between the data value of the target image signal and the data value of either of the two adjacent image signals is smaller than the threshold value, the range setting circuit sets the data value of the target image signal as both the maximum and minimum values.

A1 cont'd

8 ~~6~~. (Original) An image processing device as claimed in claim 6 ~~4~~,

wherein, when the data values of both of the two adjacent image signals are greater than the data value of the target image signal, or when the data values of both of the two adjacent image signals are smaller than the data value of the target image signal, the range setting circuit sets the data value of the target image signal as both the maximum and minimum values.

9 ~~7~~. (Original) An image processing device comprising:

an edge detecting circuit for performing second-order differentiation on image signals fed thereto to detect edge components and output edge signals representing the edge components;

an edge enhancement circuit for superimposing the edge signals on the image signals to perform edge enhancement on the image signals;

a range setting circuit for comparing, for each of image signals obtained from individual pixels, data values of a plurality of consecutive image signals preceding and

following a target image signal targeted by the edge enhancement to set a range of data values in which the data value of the target image signal is allowed to vary; and

a clipper for making the data value of the target image signal equal to the maximum or minimum value of the range set by the range setting circuit when the data value of the target image signal output from the edge enhancement circuit is greater than the maximum value or smaller than the minimum value, respectively, of the range set by the range setting circuit, the clipper otherwise leaving intact the data value of the target image signal as obtained after edge enhancement,

A1 cont'd

wherein the range setting circuit

first compares the data value of the target image signal obtained from the targeted pixel with each of data values of two adjacent image signals obtained from pixels adjacent to the targeted pixel to set, as a maximum value setting image signal, one of the two adjacent image signals whose data value is greater than the data value of the target image signal and set, as a minimum value setting image signal, one of the two adjacent image signals whose data value is smaller than the data value of the target image signal,

then compares the data value of the maximum value setting image signal with a data value of an image signal obtained from a pixel adjacent to the pixel that outputs the maximum value setting image signal so that, if the data value of the maximum value setting image signal is greater, the data value of the maximum value setting image signal is kept as the maximum value and, if the data value of the maximum value setting image signal is smaller, the maximum value setting image signal is replaced with the image signal that has been compared with the maximum value

setting image signal and comparison is continued with a data value of an image signal obtained from a pixel further adjacent, and

then similarly compares the data value of the minimum value setting image signal with a data value of an image signal obtained from a pixel adjacent to the pixel that outputs the minimum value setting image signal so that, if the data value of the minimum value setting image signal is smaller, the data value of the minimum value setting image signal is kept as the minimum value and, if the data value of the minimum value setting image signal is greater, the minimum value setting image signal is replaced with the image signal that has been compared with the minimum value setting image signal and comparison is continued with a data value of an image signal obtained from a pixel further adjacent.

A1 cont'd

10 ~~8~~. (Original) An image processing device as claimed in claim 9 ~~7~~,

wherein the range setting circuit

sets, as the maximum value, the data value of the maximum value setting image signal as it is when replacement of the maximum value setting image signal has taken place a predetermined number of times, and

sets, as the minimum value, the data value of the minimum value setting image signal as it is when replacement of the minimum value setting image signal has taken place a predetermined number of times.

11 ~~9~~. (Original) An image processing device as claimed in claim 9 ~~7~~,

wherein,

if a difference between the data value of one of the two adjacent image signals and the data value of the target image signal is greater than a predetermined

threshold value and in addition the data value of that adjacent image signal is greater than the data value of the target image signal, the range setting circuit sets that adjacent image signal as the maximum value setting image signal, and, if a difference between the data value of the maximum value setting image signal and the data value of the image signal adjacent to the maximum value setting image signal is greater than the predetermined threshold value and in addition the data value of this image signal adjacent to the maximum value setting image signal is greater than the data value of the maximum value setting image signal, the range setting circuit performs replacement of the maximum value setting image signal, and

A1 cont'd

similarly if a difference between the data value of one of the two adjacent image signals and the data value of the target image signal is greater than the predetermined threshold value and in addition the data value of that adjacent image signal is smaller than the data value of the target image signal, the range setting circuit sets that adjacent image signal as the minimum value setting image signal, and, if a difference between the data value of the minimum value setting image signal and the data value of the image signal adjacent to the minimum value setting image signal is greater than the predetermined threshold value and in addition the data value of this image signal adjacent to the minimum value setting image signal is smaller than the data value of the minimum value setting image signal, the range setting circuit performs replacement of the minimum value setting image signal.

~~10~~ 12. (Original) An image processing device as claimed in claim ~~9~~ 11, wherein,

when the difference between the data value of the target image signal and the data value of one of the two adjacent image signals is smaller than the threshold value, if the range setting circuit sets the data value of the other of the two adjacent image signals as the maximum value, the range setting circuit sets the data value of the target image signal as the minimum value, and, if the range setting circuit sets the data value of the other of the two adjacent image signals as the minimum value, the range setting circuit sets the data value of the target image signal as the maximum value, and

A1 cont'd

when the difference between the data value of the target image signal and the data value of either of the two adjacent image signals is smaller than the threshold value, the range setting circuit sets the data value of the target image signal as both the maximum and minimum values.

13 ~~11~~. (Original) An image processing device as claimed in claim 9 ~~7~~,

wherein, when the data values of both of the two adjacent image signals are greater than the data value of the target image signal, or when the data values of both of the two adjacent image signals are smaller than the data value of the target image signal, the range setting circuit sets the data value of the target image signal as both the maximum and minimum values.

2 ~~12~~. (New) A clipping circuit as claimed in claim 1,

wherein, in the minimum value setter, if the differences between the data value of the target signal and each of the data values of the adjacent signals located before and after the target signal have same signs or are both equal to or greater than the first threshold value, the data value of the target signal is set as the minimum value, and

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wherein, in the maximum value setter, if the differences between the data value of the target signal and each of the data values of the adjacent signals located before and after the target signal have same signs or are both equal to or smaller than the second threshold value, the data value of the target signal is set as the maximum value.

A1 cont.

~~13~~ 4. (New) A clipping circuit as claimed in claim 2,

wherein, in the minimum value setter, if the differences, as calculated by the second subtractor, between the data value of the target signal and each of the data values of the adjacent signals located before and after the target signal have same signs or are both equal to or greater than the first threshold value, the data value of the target signal is set as the minimum value, and

wherein, in the maximum value setter, if the differences, as calculated by the second subtractor, between the data value of the target signal and each of the data values of the adjacent signals located before and after the target signal have same signs or are both equal to or smaller than the second threshold value, the data value of the target signal is set as the maximum value.